

Date: Sun, 28 Nov 93 04:30:25 PST
 From: Ham-Homebrew Mailing List and Newsgroup <ham-homebrew@ucsd.edu>
 Errors-To: Ham-Homebrew-Errors@UCSD.Edu
 Reply-To: Ham-Homebrew@UCSD.Edu
 Precedence: Bulk
 Subject: Ham-Homebrew Digest V93 #116
 To: Ham-Homebrew

Ham-Homebrew Digest Sun, 28 Nov 93 Volume 93 : Issue 116

Today's Topics:

- 1 TUBE transmitter for QRP
 - 2M 10w amp? (3 msgs)
 - AM+FM=SSB?
 - swr protection project

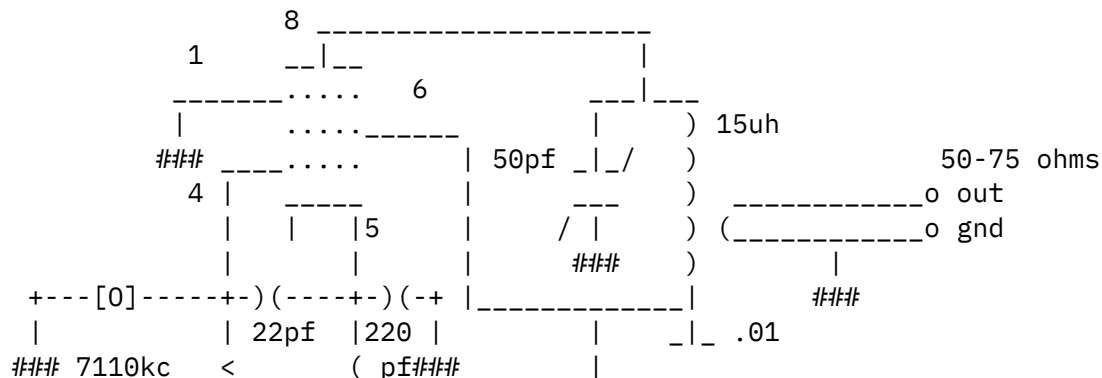
Send Replies or notes for publication to: <Ham-Homebrew@UCSD.Edu>
 Send subscription requests to: <Ham-Homebrew-REQUEST@UCSD.Edu>
 Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Homebrew Digest are available
 (by FTP only) from UCSD.Edu in directory "mailarchives/ham-homebrew".

We trust that readers are intelligent enough to realize that all text
 herein consists of personal comments and does not represent the official
 policies or positions of any party. Your mileage may vary. So there.

Date: Fri, 26 Nov 93 23:36:11 GMT
 From: munnari.oz.au!spool.mu.edu!howland.reston.ans.net!newsserver.jvnc.net!
 a3bee2.radnet.com!cyphyn!randy@network.ucsd.edu
 Subject: 1 TUBE transmitter for QRP
 To: ham-homebrew@ucsd.edu

6AG7 one tube xmit 40 mtrs (daytimer)



```

      xtal      >      (      |      |
FT-243      56 >      ( 1 mh      o      ###      | common wire
      K >      (      170vdc      ### GND/chassie
      |--)(---|      25-35 ma
      | .01 `---o key      decimal caps = uf
      ###      +---o      pf = uuf
      /\      |      caps rated 250v
      | |      ###      resis " 1/4 w any%
o o 6.3vac 650ma      all crossing lines are connected
2 7 heater

```

Tube socket, BOTTOM view

```

      4      5
      o      o
3o          o6
      2o          o7
      o v o
      1 key 8      Expect 300 mw aprox output.
      way

```

15 uh ... 35 turns 7/8" dia, 1 " long
link coil 6 turns #22 to 28 wire OK

50 pf ok if FRS's 55pf trimmer cap
Xtal WOLPS (CW Crystal co)
Tube socket FRS or Antique Electronic Supply (AES)

FRS= Fair Radio Sales

170vdc is from a 110-125vac xformer..whose 6.3 v 600 ma coil is wired to the Filament xformer (6.3vac 2 amps).

This converts 6.3 v back up to isolated 110vac.

A bridge rect (400piv 1 amp) followed by 220 uf 200vdc electrolytic will make 175-180vdc (no load).

At 35 ma, it may fall to 150vdc, but is OK for this rig.

Note...a 6CL6 or 12BY7 (different socket wiring) will work the same as this one will....so, a sub of tube (and rewire socket) can be done. Those 2 tubes are 9 pin mini tubes
12HG7 will sub 12BY7 directly. (if ya need info on that, buzz me)

Note... a 5902 sub-mini tube (direct-solder in like a transistor) will also work in ckt above, but B+ must be dropped to 90-120vdc.
A choke (8-16 hy 40ma) put between 220uf 200v and rect. will do that.

Tune up: Altho a 3 volt 25 ma bulb in series to the key will work as a current indicator, you can use station Rx set to tell when it is correctly tuned (least chirp & raspyness as you key). Full power does not quite occur at same point as best keying does... no loaded osc ever does....but you'll have same S-reading 'out there' so just go for a clean sig.

Start with the 50pf at full mesh, tap the key repeatedly and adj the cap until you hear the signal (see it on bulb as a sudden change in britness)..or see it on a watt meter (good luck!), if it can read that low.
Then adj for cleanest signal.

--

Randy KA1UNW	If you get a shock while	
	servicing your equipment,	"Works for me!"
randy@192.153.4.200	DON'T JUMP!	-Peter Keyes
	You might break an expensive tube!	

Date: Sat, 27 Nov 1993 15:03:35 GMT
From: swrinde!emory!kd4nc!ke4zv!gary@network.ucsd.edu
Subject: 2M 10w amp?
To: ham-homebrew@ucsd.edu

In article <CH1q8E.BCu@mentor.cc.purdue.edu> blumb@sage.cc.purdue.edu (Bill Blum) writes:

>Well, I have a choice.

>

>I can either shell out the \$\$ to buy a 2m amp for my HT, or I can buy a
>theory book, learn theory, and build one.

>

>Recommendations either way?

Buy the book! Solid State Design for the Radio Amateur is growing whiskers, but is still a good starting point. A somewhat more advanced treatment is Chris Bowick's RF Circuit Design. Others will have their favorite references to recomend. I'd suggest starting with a simple 2E26 amp like the PA in figure 17-24 of the 1962 Handbook. Tube designs are simple and forgiving, and they glow pleasantly in the dark. :-)

Somebody suggested the Ramsey PA kit. You won't learn much circuit theory from building it, but you'll learn a *lot* about taming spurious outputs when you attempt to tune it. You might want it anyway as a convenient source of metalwork and hardware that you can use to build a decent amp. Or, you can pull a no-brainer and use one of the many

power brick ICs that are available. They're great, but you won't learn much interfacing power to a 50 ohm in and out, unconditionally stable, amplifier IC.

Gary

--

Gary Coffman KE4ZV	Where my job's going,	gatech!wa4mei!ke4zv!gary
Destructive Testing Systems	I don't know. It might	uunet!rsiatl!ke4zv!gary
534 Shannon Way	wind up in Mexico.	emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244	-NAFTA Blues	

Date: Thu, 25 Nov 1993 11:50:38 GMT
From: mentor.cc.purdue.edu!sage.cc.purdue.edu!blumb@purdue.edu
Subject: 2M 10w amp?
To: ham-homebrew@ucsd.edu

Well, I have a choice.

I can either shell out the \$\$ to buy a 2m amp for my HT, or I can buy a theory book, learn theory, and build one.

Recommendations either way?

--

Bill Blum N9VLS blumb@sage.cc.purdue.edu Purdue University, W. Lafayette, IN
Reality is for those who can't handle subscribing to IASFM and Model Railroader

Date: Sat, 27 Nov 1993 19:08:07 GMT
From: swrinde!cs.utexas.edu!math.ohio-state.edu!sol.ctr.columbia.edu!news.kei.com!
ub!csn!yuma!galen@network.ucsd.edu
Subject: 2M 10w amp?
To: ham-homebrew@ucsd.edu

In article <2647@arrl.org> zlau@arrl.org (Zack Lau) writes:

>

>I'm thinking of writing up a stable 2 to 10 watt MRF 137
>design, though it needs a 23 volt power supply. Running
>it off a voltage doubler add spurs 75 dB down, so that
>part still needs work.
>Zack Lau KH6CP/1
>Internet: zlau@arrl.org

I've read that if you run a 24 volt device on 12 volts, you get more protection against high SWR. Do the transistors 'not like' this?

What are the differences between bipolar and FET devices when you lower the voltage?

Trying to get 100 watts on 6m,
Galen, KF0YJ

Date: 27 Nov 93 16:21:32 GMT
From: ogicse!emory!darwin.sura.net!wupost!csus.edu!netcom.com!
mbutts@network.ucsd.edu
Subject: AM+FM=SSB?
To: ham-homebrew@ucsd.edu

In the ARRL's "Solid State Design for the Radio Amateur", by Hayward and DeMaw, on p. 184 of the 1986 edition, after a nice summary of filter and phasing principles, plus a mention of Weaver, they say:

"Also, it may be shown mathematically that a carrier which is amplitude modulated properly and frequency modulated simultaneously will yield a single-sideband output."

I haven't succeeded in figuring this out.
Can someone show this mathematically or otherwise?
Has it ever been done in a real system?

By the way, Appendix 1 of this fine book has a one-page treatment of phasing SSB math.

73 de KC7IT

Mike Butts, Portland, Oregon mbutts@netcom.com

Date: Thu, 25 Nov 1993 01:26:49 GMT
From: ucsnews!sol.ctr.columbia.edu!howland.reston.ans.net!usenet.ins.cwru.edu!
agate!iat.holonet.net!pubcon.fort-worth.tx@network.ucsd.edu
Subject: swr protection project
To: ham-homebrew@ucsd.edu

oops that should read transistor, not resistor. sorry. b wb5kxw

End of Ham-Homebrew Digest V93 #116
